

CLAIMS:

Please cancel claims 1-11 and add the following new claims:

12. (new) A method of determining the living character of an element carrying a fingerprint, comprising the step of:

(a) making measurements of impedance at various points on the element by means of electrodes; and

(b) determining whether the impedance measurements (Z) satisfy a law of variation of the impedance measured by the electrodes as a function of the surface area (S) of the electrodes covered by the element such that $Z = f_D(S)$.

13. (new) A method according to Claim 12, further comprising the steps of:

(a) measuring a first impedance value between two first electrodes with a predetermined surface area;

(b) measuring a second impedance value between two second electrodes with a predetermined surface area; and

(c) checking that the points defined by the first impedance value and second impedance value and the surface areas of the first and second electrodes belong to the same curve satisfying the said variation law.

14. (new) A method according to Claim 12, further comprising the steps of:

(a) making a first measurement of impedance between two first electrodes with a first predetermined surface area and determining the curve satisfying the variation law;

(b) making a second measurement of impedance between two second electrodes with a second predetermined surface area, and

(c) checking that the point defined by the second impedance measurement and second predetermined surface area values belong to an area of tolerance situated around the curve.

15. (new) A method according to Claim 14, wherein the second impedance measurement is made randomly between two electrodes of the same size and two electrodes of different sizes.

16. (new) A method according to Claim 14, wherein the second impedance measurement is made alternately between two electrodes of the same size and between two electrodes of different sizes.

17. (new) A fingerprint sensor adapted to determine the living character of an element carrying a fingerprint, the sensor comprising:

(a) at least four electrodes, at least two of which have smaller surfaces than two other with larger surfaces;

(b) means for measuring the impedances at least between on the one hand two electrodes with small surfaces and on the other hand two electrodes with larger surfaces, and

(c) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement.

18. (new) A fingerprint sensor according to Claim 17, wherein the two electrodes with smaller surfaces are less distant from each other than the two electrodes with larger surfaces.

19. (new) A fingerprint sensor adapted to determine the living character of an element carrying a fingerprint, the sensor comprising:

(a) a first set of four single-piece electrodes with identical large surfaces and a second set of two electrodes in the form of intersecting combs with identical surfaces less than the identical large surfaces;

(b) means for measuring the impedances between electrodes selected from the group consisting of: the two electrodes with smaller surfaces; two of the electrodes with larger surfaces; and one of the electrodes with smaller surfaces and one of the electrodes with larger surfaces; and

(c) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement.

20. (new) A fingerprint sensor adapted to determine the living character of an element carrying a fingerprint, the sensor comprising:

(a) a first set of four single-piece electrodes with identical large surfaces and a second set of four single-piece electrodes with identical surfaces smaller than the identical large surfaces;

(b) means for measuring the impedances between electrodes selected from the group consisting of: two of the electrodes with smaller surfaces; two of the electrodes with larger surfaces; and one of the electrodes with smaller surfaces and one of the electrodes with larger surfaces, and

(c) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement.

21. (new) A fingerprint sensor adapted to determine the living character of an element carrying a fingerprint, the sensor comprising:

(a) a first set of four single-piece electrodes with identical large surfaces and a second set of two single-piece electrodes with identical surfaces smaller than the identical large surfaces and a third set of two electrodes in the form of intersecting combs with identical surfaces smaller than the identical large surfaces;

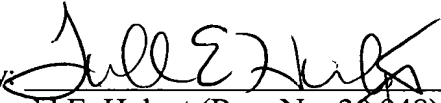
(b) means for measuring the impedances between electrodes selected from the group consisting of: one electrode from the second set and one electrode from the third set; two electrodes of the first set; one electrode from the first set and one electrode from the third set; one electrode from the first set and one electrode from the second set; two electrodes of the second set, and two electrodes of the third set; and

(c) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement.

22. (new) A fingerprint sensor according to Claim 17, further comprising an optical system producing an image of the fingerprint and determining the surface area of the electrodes not entirely covered by the fingerprint.

Respectfully submitted,

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